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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/819,957	03/28/2001	Jianglei Ma	NTL-3.2.145/3519 (12818RO)	4214
7590 06/21/2004 <b>COBRIN &amp; GITTES</b> 750 Lexington Avenue, 21 Floor New York, NY 10022			<b>EXAMINER</b> HA, DAC V	
			ART UNIT	PAPER NUMBER
			2634	
DATE MAILED: 06/21/2004				

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Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/819,957

Applicant(s)

MA ET AL.

Examiner

Dac V. Ha

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 2 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on 28 March 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☒ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1,2,5,6,9,10,13,14,17-20,23 and 24 is/are allowed.
- 6) ☐ Claim(s) \_\_\_\_\_ is/are rejected.
- 7) ☒ Claim(s) 3,4,7,8,11,12,15,16,21,22,25 and 26 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 July 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

1. This application is in condition for allowance except for the following formal matters:

2. **Claims 3-4, 7-8, 11-12, 15-16, 21-22, 25-26** are objected to because of the following informalities:

Claim 3, line 2, the recitation "said frames" and "said time" should be changed to "said plurality of frames" and "said plurality of time", respectively, to avoid antecedent basis problem.

Same problem exists in claims 7, line 2; claim 11, line 2; claim 15, line 2; claim 21, line 2 and claim 25, line 2.

Appropriate correction is required.

3. The drawings are objected to because Figure 2 fails to show a clear description for all elements (i.e., element 205 should be labeled "training symbol" and element 207 should be labeled "data symbol"). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

4. Applicant is required to submit a proposed drawing correction in reply to this Office action. However, formal correction of the noted defect may be deferred until after the examiner has considered the proposed drawing correction. Failure to timely submit the proposed drawing correction will result in the abandonment of the application.

Prosecution on the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

A shortened statutory period for reply to this action is set to expire **TWO MONTHS** from the mailing date of this letter.

***Allowable Subject Matter***

5. **Claims 1-26** are allowed.

Prior art of record, taking individually or collectively, fail to suggest the motivation for incorporating in an apparatus and method, as claimed, a transmission over a plurality of sub-carriers by at least two antennas comprising: "assigning a respective pseudo-noise (PN) code to each of said at least two antennas; assigning each of said plurality of sub-carriers to a respective one of said at least two antennas; modulating each of said plurality of sub-carriers as a function of said respective pseudo-noise (PN) code that is assigned to a same one of said at least two antennas as said each of said plurality of sub-carriers such that a plurality of modulated sub-carriers are obtained that are each assigned to a respective one of said at least two antennas" in independent claims 1, 9, 17, 19 (claims 2-4, 10-12, 20-22 depend therefrom); and a transmission over a plurality of sub-carriers by at least two transmitter devices each having at least two antennas comprising: "assigning a respective pseudo-noise (PN) code to each of said at least two antennas; assigning each of said plurality of sub-carriers to a respective one of said at least two transmitter devices; modulating each of said plurality of sub-carriers as a function of said respective pseudo-noise (PN) code that is assigned to a same one of said at least two transmitter devices to which said each of said plurality of sub-carriers is assigned such that a plurality of modulated sub-carriers are obtained that are each assigned to a respective one of said at least transmitter devices"

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in independent claims 5, 13, 18, 23 (claims 6-8, 14-16, 24-26 depend therefrom). Thus, claims 1-26 are found to be novel and unobvious over prior art of record.

***Conclusion***

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Ketchum (US 6,731,668) discloses Method And System For Increased Bandwidth Efficiency In Multiple Input-Multiple Output Channels.

Chheda et al. (US 6,704,370) disclose Interleaving Methodology And Apparatus For CDMA.

Boleskei et al. (US 6,442,214) disclose Diversity Transmitter Based On Linear Transform Processing Of Transmitted Information.

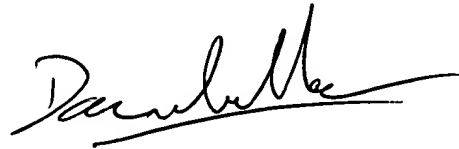
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dac V. Ha whose telephone number is 703-306-5536. The examiner can normally be reached on 5/4.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin can be reached on 703-305-4714. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only.

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For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read 'Dac V. Ha', with a horizontal line drawn underneath the signature.

Dac V. Ha  
Examiner  
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